

Installation Manual

1968 CHEVROLET NOVA

DOCUMENT #1-1060
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Congratulations...

You have just purchased the highest quality, best performing A/C system ever designed for your vehicle.

Congratulations! ! You have just purchased the highest quality, best performing A/C system ever designed for your Classic Car. To obtain the high level of performance and dependability our systems are known for, pay close attention to the following instructions.

Before beginning the installation check the box for the correct components.

Evaporator

Face Duct Assembly

Inlet Air Block Off Assembly

Firewall Block Off Assembly

Flex Hose 2"dia. x 3ft.

Flex Hose 2"dia. x 4ft x 2ea..

Flex Hose 2 ½"dia. x 2 ft.

Sack Kit Louver

Sack Kit Hardware

Sack Kit Control

Glove Box



Check List, Pre-Installation:

- ☐ Before beginning the installation check the shipping box for the correct components. YOUR BOXED UNIT INCLUDES A LIST OF MAJOR COMPONENTS AND A LIST OF BAGGED PARTS. We have a 5 stage check process to make sure you have everything you'll need.
- ☐ **If your vehicle has been or is being modified, some procedures will need to be adjusted to fit your particular application.**
- ☐ A basic cleaning of the engine compartment and interior before beginning will make things go more smoothly.
- ☐ Check condition of engine mounts. Excessive engine movement can damage hoses to A/C and/or heater.
- ☐ Before starting, check vehicle interior electrical functions (interior lights, radio, horn, etc). Make a note of anything that does not work as it's supposed to. During the installation you might find the opportunity to repair or upgrade non-working or out of date components. When you're ready to start the installation, **DISCONNECT THE BATTERY FIRST.**
- ☐ Drain the radiator. Retain the coolant and reuse, or dispose of properly.
- ☐ SAFETY FIRST: Wear eye protection while drilling/cutting, deburr sharp edges, and never get in a hurry or force a part.
- ☐ Tools: Your installation only requires the basic tools everyone has in their garage, nothing exotic or specific to A/C or Heat equipment.

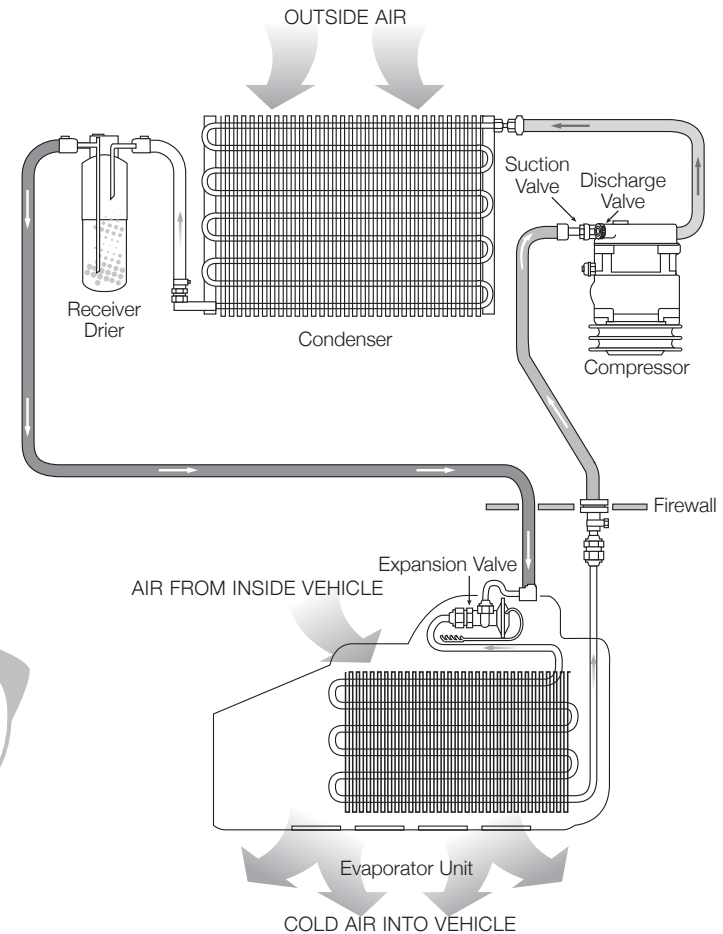
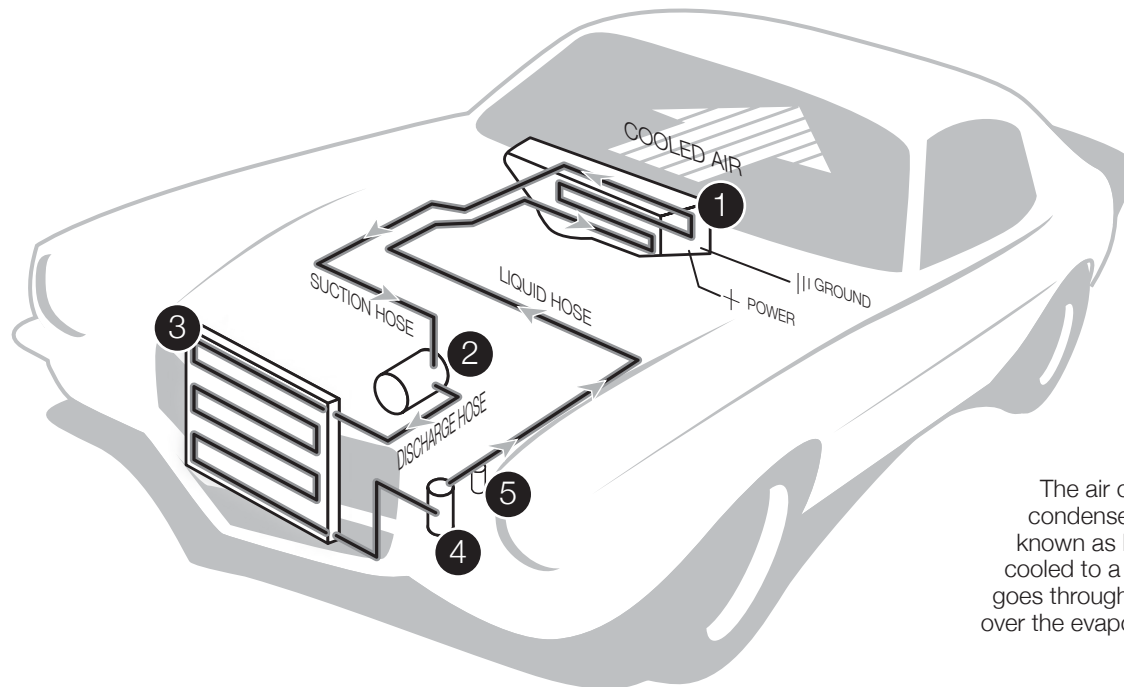
Procedures, During Installation:

- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and where o-rings seat in fittings. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective components (or missing items), call us immediately, we will be glad to assist you. Our toll-free number is listed on every page, we're here to help!**

CAUTION: DISCONNECT BATTERY GROUND CABLE
YOU CAN NOW BEGIN THE INSTALLATION...

A Basic Overview of Automotive A/C....

- 1 **Evaporator with Blower Fan** In order to remove the heat from the air in the vehicle, the A/C evaporator allows the refrigerant to absorb the heat from the air passing over it. The blower fan moves cool air out into the car interior.
- 2 **Compressor** The compressor pumps and circulates the refrigerant through the system.
- 3 **Condenser** The condenser is a heat exchanger mounted at the front of the vehicle. Heat drawn out of the interior of the car is expelled here.
- 4 **Receiver/Drier** The drier not only dries refrigerant, it also filters the refrigerant and stores it under certain operating conditions.
- 5 **High Pressure Switch** A pressure switch is used to shut down the system if high or low pressure is detected, basically it acts as a safety switch.



The air conditioning system in your car is comprised of a compressor, condenser, expansion valve, receiver/drier, and evaporator. Refrigerant (also known as Freon) is compressed in the compressor. In the condenser, gas is cooled to a liquid state and travels to the expansion valve. As the liquid refrigerant goes through the expansion valve it rapidly cools in the evaporator. A fan blows over the evaporator and cools the air that blows out your vents

**“PERFECT FIT SERIES”
IN-DASH
HEAT/ COOL/ DEFROST**

CONTROL & OPERATING INSTRUCTIONS

The controls on your new “Perfect Fit” system. Offers complete comfort capabilities in virtually every driving condition. This includes Temperature control in all of the modes.



THE PICTURE YOU SEE SHOWS THE CONTROLS IN THE HEAT MODE. THIS MEANS THAT THE AIR WILL BE DISTRIBUTED THROUGH THE HEATER OUTLETS. THIS ALSO HAS THE TEMPERATURE LEVER IN THE COLDEST POSITION. WITH THE CONTROLS IN THIS POSITION YOU WILL GET THE AIR THROUGH THE HEATER OUTLETS AND THE OUTLET TEMPERATURE AT THE COLDEST POSSIBLE DEGREE.



CAUTION: ALL OF THE OUTSIDE VENTS MUST BE CLOSED WHEN THE SYSTEM IS IN THE A/C MODE. THIS WILL ALLOW THE A/C SYSTEM TO FUNCTION AT ITS MAXIMUM PERFORMANCE LEVEL.

THE FOLLOWING SUMMARY WILL DESCRIBE EACH OF THE CONTROL LEVERS FUNCTION.

FAN SPEED SWITCH: There are 3 speeds plus Off. When the switch is in the off position it will disconnect the 12V power to the Blower Motor and the A/C Clutch. This will shut down the entire system. When the switch is moved to any of the blower speeds 1, 2 or 3 there is 12V supplied to the Micro-Switch which is mounted on the defrost air housing.

FLOOR / FACE / DEFROST MODE: When the BOTTOM lever is moved all the way to the LEFT, it will direct the air to the floor ducts. When the lever is moved into the CENTER position the air is directed to the Dash Louvers. When the lever is pushed to the RIGHT, the air will be directed onto the defrost outlets. When the lever is in the Defrost position the A/C Compressor is activated and provides Dehumidification.

TEMPERATURE CONTROL: The temperature lever as shown is in the COLDEST temperature position. As the lever is pushed to the RIGHT the temperature of the discharged air will RISE to the HOTTEST point.

Note: The temperature lever will function in any of the modes.

AIR CONDITIONING MODE: The picture shows the controls in the A/C Mode (air-flow out the louvers).

When Air Conditioning is required the compressor clutch must be activated. This is accomplished when the RIGHT lever is in the Center position. When the compressor is activated the Temperature Lever will control the air from maximum cold through maximum heat.



Remove Glove box door and glove box, discard glove box retain original hardware.

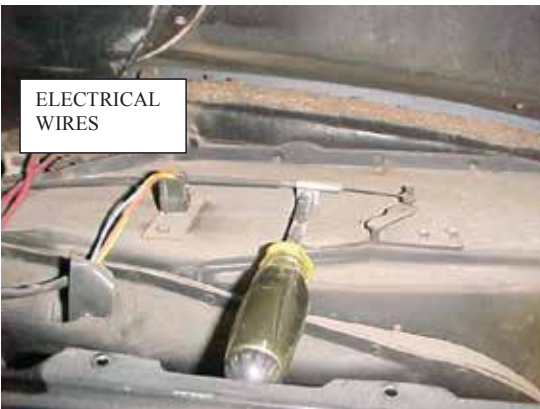
Removal of the Original Heater Assembly can be accomplished by disconnecting three control cables.

One attached to the Temperature door.

Disconnect the electrical wires at the resistor.

One attached to the Heat / defrost door. This can be found behind heater box next to the throttle cable.

Third cable is located on top of the heater next to the defrost ducts.





Locate (2) screws above the controls and remove.

Locate support bracket from the controls to the steering assembly. Remove these bolts and bracket. Remove original control head. Retain original hardware.

When removing the control assembly, disconnect electrical plug on the switch and (2) control cables. Also remove light socket. Retain original hardware. Set controls aside for modification.



In order to remove the heater assembly it is necessary to remove the Blower Housing Assembly first. It is also necessary to remove the passenger side fender.

Remove hood and retain the original hardware. Remove passenger side light bezel. Retain original hardware.



Remove front bumper. Retain original hardware.

Remove (2) bolts as shown.

Located behind the passenger door, remove fender bolt.

Locate under front fender behind the wheel well (2) fender bolts. Remove and retain.

CAUTION: FENDER IS INSTALLED WITH SPACERS FROM THE FACTORY. MAKE NOTE OF QUANTITY FOR REINSTALLATION.



Remove (2) bolts as shown.

Remove and retain the inner fender bolts.

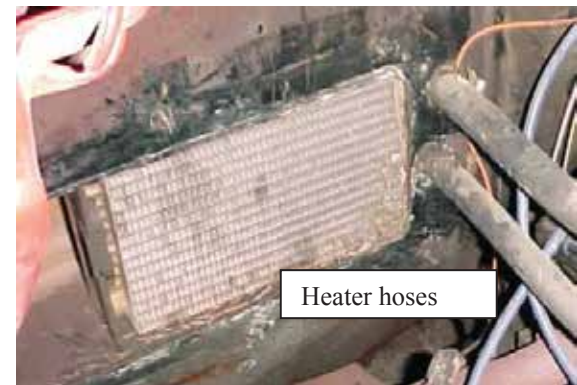
Carefully remove fender and set aside. Retain all original hardware.

Remove the blower and housing assembly. Remove and retain the (2) screws that are above and below the blower motor.

DRAIN COOLANT FROM RADIATOR. Remove Heater hoses from heater coil at firewall.



REMOVE BOLTS





Located behind the glove box opening. Remove heater assembly and discard.

Locate the air inlet block off from the kit. Using original hardware attach over inlet hole.

INSTALL FRONT FENDER AND THE HOOD. BE SURE THAT THE BODY SPACERS ARE IN THE CORRECT LOCATION.



Locate behind the glove box and on firewall the hole that previously mounted the heater box. Drill (1) $\frac{3}{4}$ " dia. hole for the drain tube as shown.

DRILL $\frac{3}{4}$ " DIA. HOLE
 $\frac{3}{4}$ " BETWEEN CENTERS



$\frac{3}{4}$ " DIA .



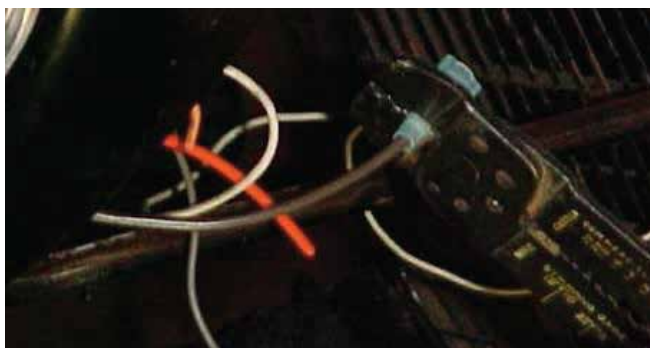
Locate wire assembly that plugged into the original blower switch. Cut all but the brown wire as far back as you can.

Cut brown wire at the plug. Attach a male insulated spade connector.

Locate the wire assembly that attached to the resistor. Cut the wires back as far as possible. Locate the template provided. Cut out template and tape to the dash pad.

There is a vertical line on the template. This line should line up with edge of the glove box opening. Bottom of the template will line up with bottom edge of padded dash.

Carefully cut dash pad along the opening in the template.





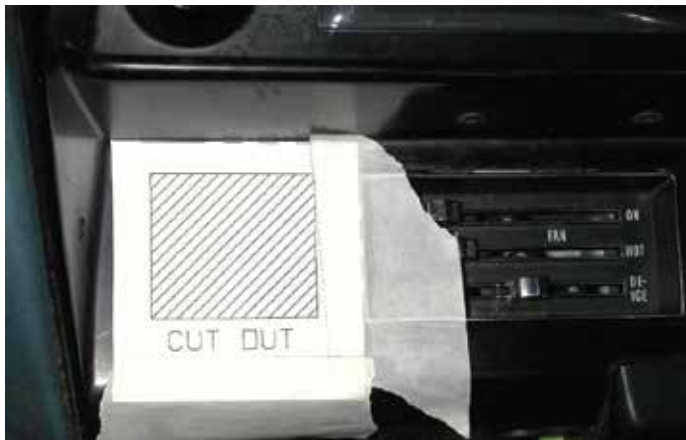
Locate template for the passenger side louver assembly. Attach to right side of the glove box.

Cut panel carefully to the line. It may be necessary to use a file to finish sizing the hole. Use louver from the hardware sack kit to test fit. Locate driver's side louver template and carefully cut out the perimeter. Attach to the instrument cluster as shown.

Cut panel carefully to the line. It may be necessary to use a file to finish sizing the hole. Use louver from the hardware sack kit to test fit.

Locate 2" dia flex hose and (2) #8 x 3/8" pan head screw. Cut 42" of flex hose and attach it to the passenger louver assembly. Install louver assembly and route flex hose behind instruments and over to center of the car.

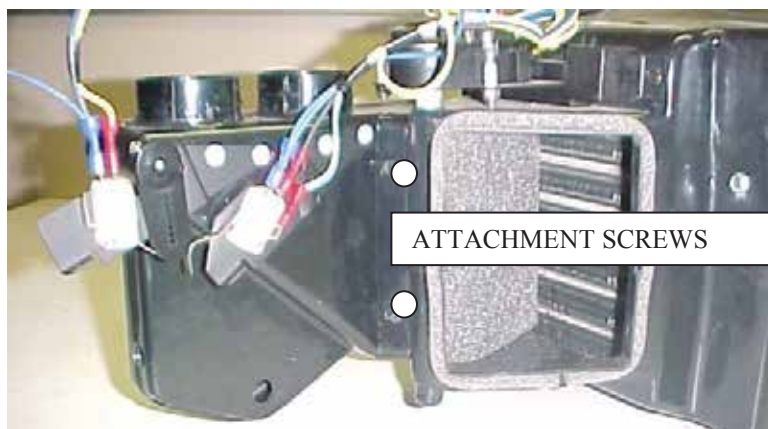
All modifications to the vehicle are complete; we will now begin the installation of the System.



Locate Evaporator, Defrost Duct Assembly, and (2) #10 x 5/8" pan head screws. Attach defrost duct to the evaporator using the (2) screws. Be sure that s-clips on back of the duct are attached to opening flange on the evaporator.

Locate electrical harness that is attached to the face door and connect to the micro switches. Refer to the wiring diagram on last page for correct connections.

Locate the defrost duct looking through the glove box opening. Cut off the lower section of the duct level to the support bracket. Place Evaporator assembly on passenger floor, lift into place. Insert upper rear Evaporator mounting stud through original hole as shown. Attach using (1) 1/4" - 20 flange nut provided. Also insert the defrost outlets into the defrost duct assembly.





Locate in the hardware sack kit (2) mounting brackets, (2) #10 x $\frac{3}{4}$ " tek screws, and (4) #10 x $\frac{5}{8}$ " pan head screws. Attach brackets to holes provided on front of the evaporator using #10 pan head screws. Holding evaporator level with bottom of glove box opening attach to the body of the car using (2) tek screws.

CAUTION: INSTALL SCREWS TO THE HOUSING USING A NON-POWERED SCREW DRIVER.



Locate the Firewall Block Off plate, and (7) #10 x $\frac{3}{4}$ " hex head tek screws.

On engine side of firewall attach over hookup tubes from evaporator using (7) #10 x $\frac{3}{4}$ " hex washer head Tek screws.



Locate the original control assembly. Remove and discard the following components. Retain all of the original hardware. (1) Original Blower Switch (2) Control Cable

Locate the blower switch assembly provided in kit.

Attach Blower Switch assembly on to control head with original screws.

Locate the Connecting Wire and $\frac{3}{16}$ " push nut. Attach to the switch and lever as shown.



Locate in the control sack kit the (SHORT) Heat / Defrost control cable, (LONG) Temperature control cable, (2) $\frac{3}{16}$ " push nuts and (2) Cable Clips.

Rotate the control head upside down. Attach the temperature control cable and clip to bottom lever arm using the original screw and $\frac{3}{16}$ " push nut. NOTE: Cable sleeve is located $\frac{1}{16}$ " from the lever arm.



Attach Heat / Defrost cable to control lever in the center. Using (1) cable clip, (1) push nut and the original screw. NOTE: Cable sleeve located 1/16" from the lever arm. Attach Wire Harness supplied in unit to the blower switch.

REFER TO THE WIRING DRAWING ON LAST PAGE FOR PROPER CONNECTIONS.
NOTE: NEXT FEW STEPS ARE LOCATED BEHIND THE INSTRUMENT PANEL.

Reinstall control head using the original hardware.

Connect power wire (brown / from the original harness) to Red / White stripe wire from the new harness supplied.

Route harness across to top of the evaporator, connect to the 4 pin connector at blower motor and locate 2 spade connectors, plug into thermostat. Refer to the wiring diagram. Locate black wire with ring terminal from the blower motor and (1) #10 tek screw. Attach this terminal to the body.

Locate ground wire from the servo motor harness and attach it to the brace as shown. use (1) #10 tek screw.

Locate (2) blue wires at control end of the wire harness. Wire from the controls attaches to the jumper connector on the micro switch. Wire from thermostat connects directly to the micro switch. Route shortest of the (2) cables and attach to the defrost / heat duct. Insert cable into 3rd hole from end of the crank arm.

Attach using (1) #8 x 1/2" pan head screw.



Route temperature cable across and behind evaporator and out the suction tube hole. Also locate blue clutch wire from the thermostat. Route over top of the unit and out the suction hole tube.

Locate the Water Valve and (3) worm gear clamps. Supply line from engine is attached to the upper heater hookup tube. Cut 6" off end of the return line and install water valve using (3) worm gear clamps as shown above.

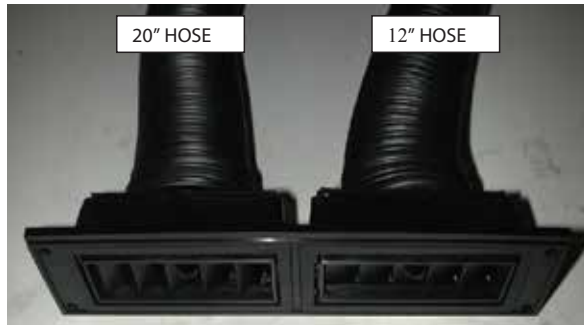


Locate temp cable and attach it to the heater water valve. Be sure that the temp lever on control head is in the cold position. Note: It is recommended that you replace heater hoses from the engine to the hookup tubes.

Locate the face duct assembly. Attach to the evaporator outlet using s-clips at top and bottom of the duct.

Locate 2" flex hose from the drivers louver and attach to left outlet on the face duct.





Locate in the hardware sack kit the center louver assembly, and (4) #6 X 1" screws.

Locate the 2" flex hose. Cut (1) piece of hose 12" long and (1) piece of hose 20" long. Attach to the hose adapters.

Insert center louver assembly through opening and attach to the dash pad using (4) #6 x 1" pan head screws from the hardware sack kit.

Route flex hose down and attach left louver to the lower front outlet. Attach right louver to the top outlet.

Locate 2" dia flex hose, and (2) #8 x 3/8" pan head screw. Cut 34" of flex hose and attach to the passenger louver assembly.





Insert assembly through the opening and snap in place. Attach other end of hose to front outlet on the unit.

Locate the New Glove Box supplied in kit. Slide through opening as shown. Reinstall the glove box and door. Attach using original hardware. NOTE: Flex hose from the passenger louver routes above the glove box.

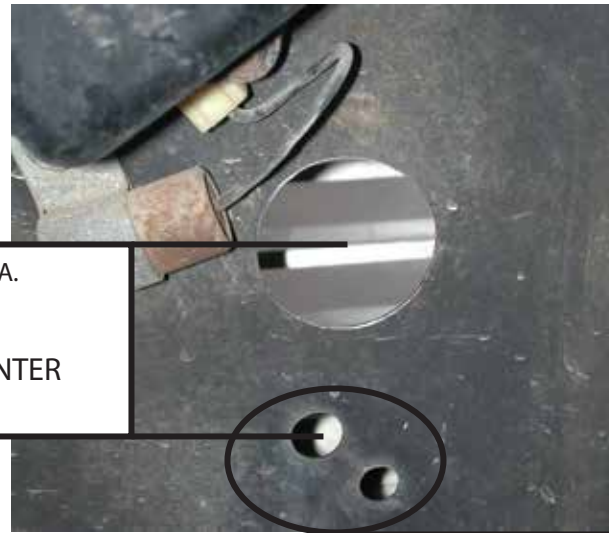
Caution: Carefully check under the Instrument Panel for all cables, electrical harness, or Flex hoses that might interfere with safe operation of the vehicle.



Installation of the interior components is complete. We will now install the under hood portion of the system.

Remove the hood latch assembly. Retain original hardware. Located on drivers side of radiator and on the radiator bulkhead. There are (2) holes.

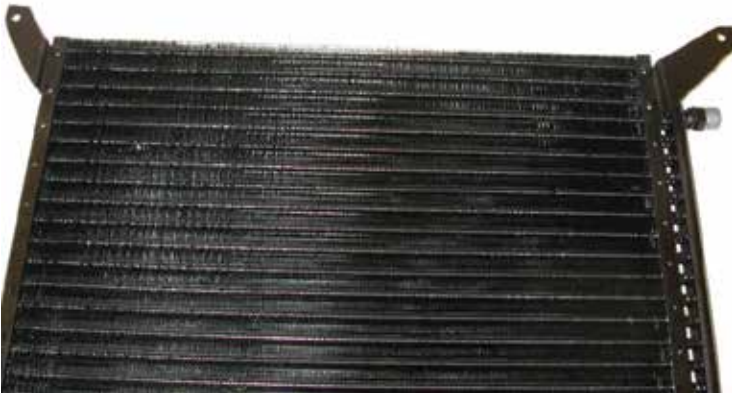
Locate and drill (1) 1 1/2" dia hole, 1 3/4" above the top original hole.



DRILL 1 1/2" DIA.
HOLE

1 3/4" ON CENTER

ORIGINAL (2) HOLES



Locate the Condenser, (2) top condenser mounting brackets, (2) bottom condenser mounting brackets and (8) #10 x 3/8" hex head screws. Attach brackets to the condenser as shown.

Place condenser on the bench with fittings to the left. Attach the lower mounting brackets to the bottom (2) holes using (4) #10 hex head screws. Tighten screws at the bottom of slots.

Turn condenser over and attach top mounting brackets to the top holes using #10 hex head screws.

Locate in the hardware sack kit (2) 5/16 j-clips. Attach over holes in the upper radiator bulkhead.



Slide condenser assembly down in front of the radiator. Locate (2) 5/16-18 x 1/2" hex head bolt and flat washer. Attach top left bracket to the j-clip using 5/16" bolt and washer.

Locate the discharge tube, (1) #8 o-ring and (1) hole grommet. Attach tube to fitting on the condenser using a few drops of mineral oil and the o-ring. Other end goes through the hole previously drilled. Install grommet over the tube as shown. Attach top right bracket to the j-clip using 5/16" bolt and washer



Locate the liquid tube, (1) #6 o-ring, 3/8" hose clamp, and (2) #10 tek screws.

Attach looped end of the tube to lower condenser fitting using (1) #6 o-ring and a few drops of mineral oil.

Other end will be attached to the lower condenser bracket using the 3/8" clamp and a #10 tek screw. Using other tek screw secure the right side lower condenser bracket.





REINSTALL THE FRONT BUMPER AND HOOD LATCH ASSEMBLY USING ORIGINAL HARDWARE.

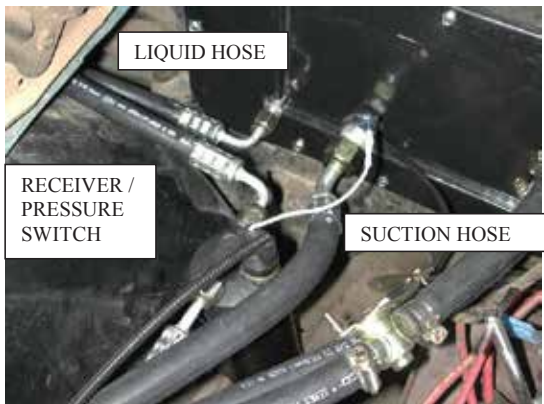
INSTALL THE COMPRESSOR ADAPTER KIT AND COMPRESSOR AT THIS TIME PER THE MANUFACTURERS DIRECTIONS.

NOTE: THIS INSTALL IS CORRECT FOR A 350CID V8 ENGINE, WITH ALTERNATOR ON PASSENGER SIDE OF VEHICLE. IF YOUR VEHICLE IS EQUIPTED WITH A DIFFERENT ENGINE PACKAGE IT WILL BE NECESSARY TO ROUTE THE HOSES DIFFERENT

Locate Discharge hose and (1) #8 o-ring.

Attach #8 refrigerant hose with the service port end to the compressor using (1) #8 o-ring and a few drops of mineral oil. Attach the other end to fitting from the condenser. Tighten securely.

Locate the suction hose and (2) #10 o-rings. Attach end with service port to the compressor as shown above. Route hose over the radiator hose, across engine and over to #10 fitting on the firewall. Attach both ends using #10 o-rings and a few drops of mineral oil.



RADIATOR



Locate the Filter / Drier, Drier Mounting Bracket, liquid hose (short), (2) #6 o-rings and (2) #10 x 3/4" hex head tek screws.

Install Filter drier to the inner fender well as shown. Install #6 liquid hose between firewall and the drier. Use a few drops of mineral oil on the o-ring and fittings, tighten securely.

Locate Hi-Low pressure switch and attach to top of the receiver drier using a few drops of mineral oil.

Locate the liquid hose (long) and (2) #6 o-ring. Attach one end to the drier. Route other end along inner fender and down to the condenser fitting. Attach using #6 o-ring and a few drops of mineral oil.

Locate the remaining clamps and screws. Attach hoses to the alternator bracket and the inner fender well.





**THE ENGINE COMPARTMENT OF YOUR SYSTEM IS COMPLETE.
THE UNIT IS READY FOR EVACUATION AND CHARGING.**

**THIS SHOULD BE DONE BY A QUALIFIED AND CERTIFIED AIR CONDITIONING
TECHNICIAN.**

**NOTE: COMPRESSOR IS SUPPLIED WITH THE
CORRECT OIL CHARGE. DO NOT ADD OIL TO
SYSTEM.**

**134a SYSTEMS 24 oz OF REFRIGERANT
Recommend that power fuse is 25amp minimum**

Congratulations you have completed the install of your CLASSIC AUTO AIR "Perfect Fit Series" system.

IMPORTANT!

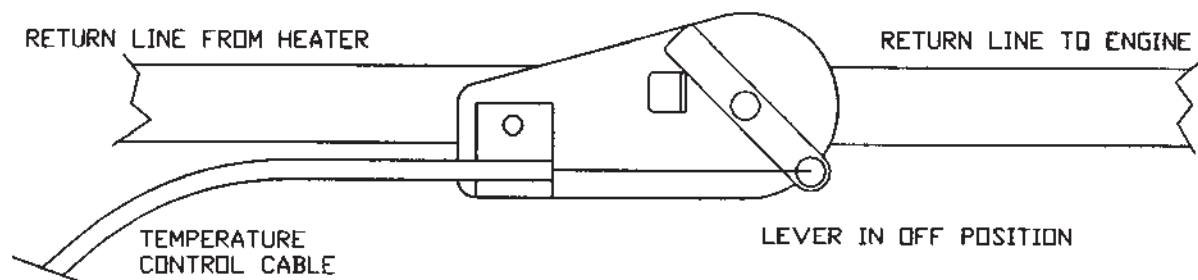
CAUTION: WATER VALVE MUST BE INSTALLED PER THE INSTRUCTIONS.

This data sheet covers the proper installation of the "Temperature Control Water Valve" that is supplied in your Air Conditioning , Heating, and Defrost unit. Classic Auto Air has done extensive testing on the correct method to install the water valve in order to get a repeatable and progressive temperature control.

It is necessary to locate the "Supply Line" from the engine on the vehicle and route a hose directly to the heater connection.

NOTE: The supply line will be coming from the engine block after the water has passed through and absorbed heat from the engine. Typically it is located next to the return radiator hose from the engine to the top of the radiator.

Locate the "Return Line" from the heater connection. Cut 6" of 5/8" dia. heater hose and attach it to the inlet side of the water valve. Attach this assembly to the return heater connection. Attach a heater hose from the outlet side of the water valve and route to the return connection on engine. NOTE: The return connection is typically located on the water pump.

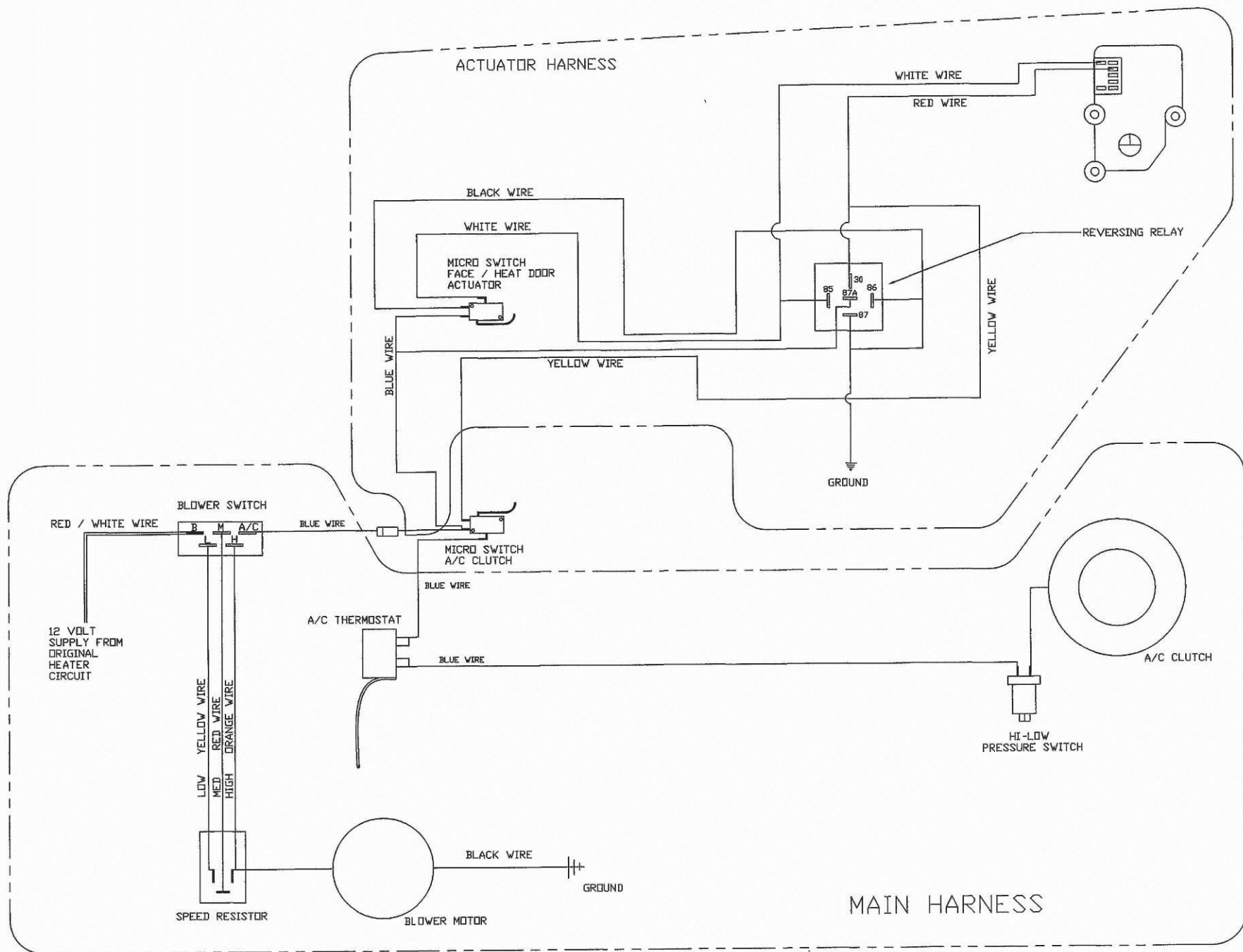


TDS-001 WATERVALVE

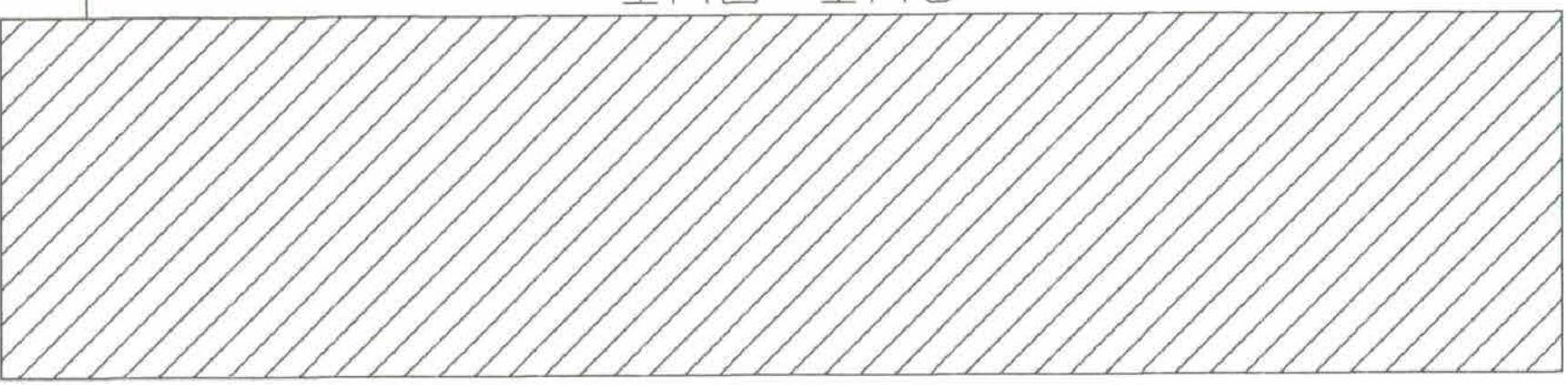
CAUTION: WATER VALVE MUST BE INSTALLED ON HEATER LINE ROUTED TO WATER PUMP.

**NOTE: COMPRESSOR PURCHASED WITH KIT IS
SUPPLIED WITH THE CORRECT OIL CHARGE. DO
NOT ADD OIL TO SYSTEM.**

**134A SYSTEMS 24 oz OF REFRIGERANT
Recommend that power fuse is 25amp minimum**



CENTRE LOUVER TEMPLATE



CUT OUT



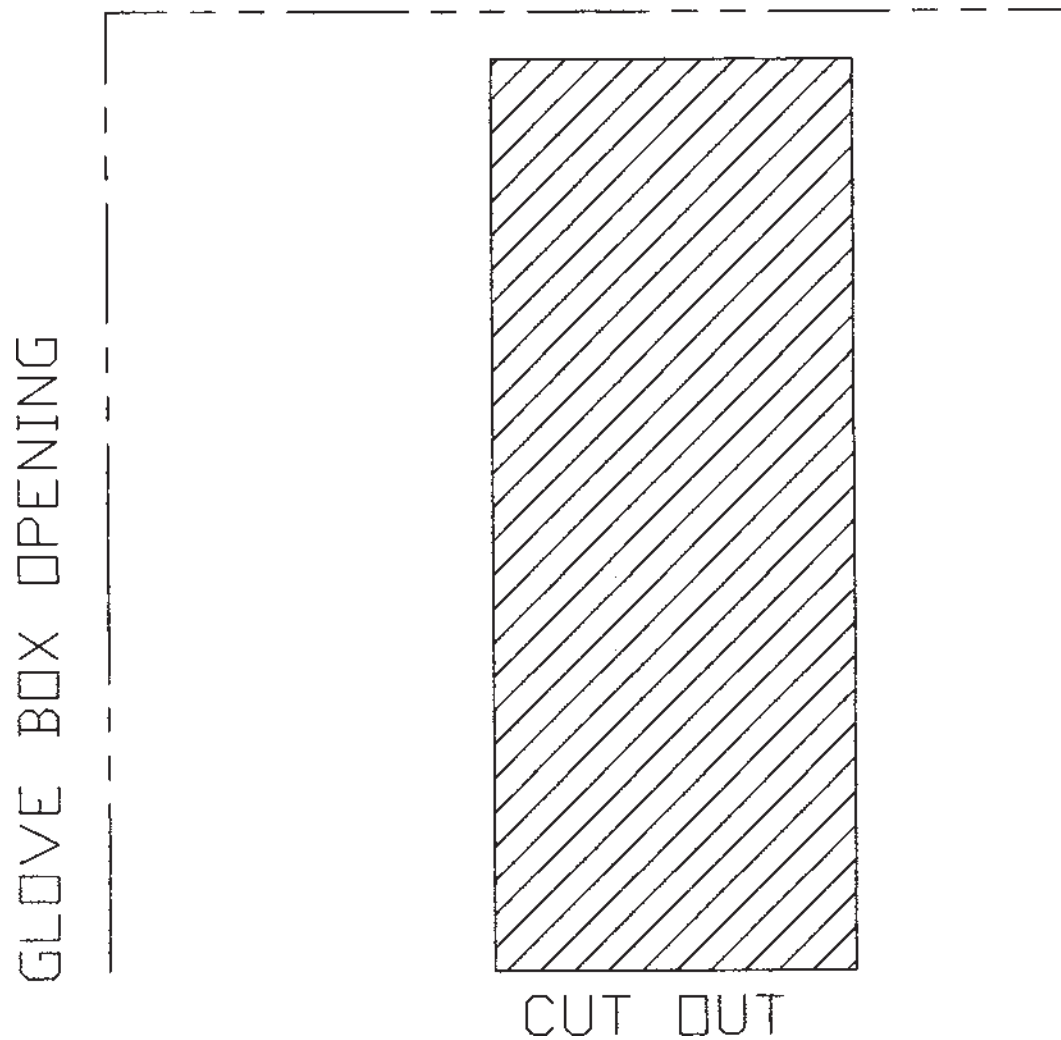
BOTTOM EDGE OF DASH

LINE UP WITH

EDGE OF GLOVE BOX

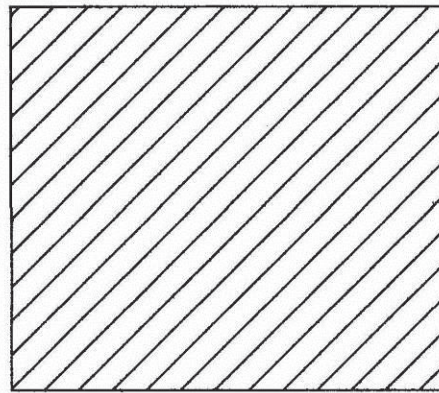
TEMPLATE
PASSENGER LOUVER
1968 NOVA

BOTTOM EDGE PADDED DASH



TEMPLATE
DRIVERS LOUVER

EDGE OF DASH



CUT OUT

CONTROL TRIM